PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS

Appeal No._____

In re Application of: ROBERT A. WIEDEMAN ET AL

Serial No.: 09/751,765

Filed: December 29, 2000

For: METHOD AND APPARATUS PROVIDING SUPPRESSION OF SYSTEM ACCESS BY USE OF CONFIDENCE POLYGONS, VOLUMES AND SURFACES IN A MOBILE SATELLITE SYSTEM

APPELLANTS' BRIEF ON APPEAL

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS

In re Application of: R. A. WIEDEMAN ET AL	:	Date: November 20, 2007
Serial No.: 09/751,765	:	
Filed: December 29, 2000	:	Group Art Unit: 2617
For: METHOD AND APPARATUS PROVIDING	:	
SUPPRESSION OF SYSTEM ACCESS BY USE	:	Examiner: James D. Ewart
OF CONFIDENCE POLYGONS, VOLUMES AND	:	
SURFACES IN A MOBILE SATELLITE SYSTEM	:	

APPELLANTS' BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This appeal is taken from the decision of the Examiner in the Office Action dated May 2, 2007 finally rejecting Claims 1-25 of the above-identified patent application. This brief is submitted in accordance with the provisions of 37 C.F.R. §41.37.

REAL PARTY IN INTEREST

The real party in interest is Globalstar, Inc. which acquired rights to the present application by way of an assignment from the inventors.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, Appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-26 are currently pending in this application. Claims 1-25 were finally rejected in the Office Action dated May 2, 2007. Appellants appeal from this final rejection of claims 1-25. Claim 26 was allowed.

STATUS OF AMENDMENTS

A paper dated November 16, 2007 filed in response to the final rejection made a minor amendment to claim 10.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention provides that the teachings can be employed to control the actions of a user terminal (UT) (5, Fig. 1) located at a remote location, possibly far from a gateway (GW) (1, Fig. 1), which has an interface to the Public Switched Telephone Network (PSTN) (2, Fig. 1) and/or to the Internet or to any other kind of network, either mobile or fixed. These teachings employ a computer generated and stored database of an area (referred to as a Confidence Polygon) (9, Fig. 1), a volume (referred to as a Confidence Volume) (31, Fig. 2), and/or a plane (referred to as a Confidence Surface) (33, Fig. 2) to establish a geometric shape located on the earth, above the earth or in space, or combinations thereof. In addition, there is assigned to these areas, volumes and/or planes a static or a variable value referred to as a Confidence Limit (CL) that can be compared to a value of an error (E) in a position location (12, Fig. 1) of the UT. The error signal can either be generated by the UT or by the GW. A controller (66, Fig. 6), which may be a part of the GW, acts upon the database of the geometric shapes, and the assigned or derived values of CL and E, to determine if the comparison of CL and E, combined with the current position of the UT, yields a certain result according to the operational mode of the controller. There can be many operational modes of the controller. Depending on the operational mode the result of the comparison of the CL assigned to the area, volume or plane is used to affect control of the UT or an external device attached to the UT. By example, the UT may be forbidden or allowed to access the system or to make or receive a call, or some operational characteristic(s) of the UT may be specified, such as transmitter power, frequency, and the like. The end result, by example, is an ability to provide protection for a site, such as a radio astronomy site from UT emissions.

Also disclosed is a method for operating a mobile satellite communication system having at least one GW (1, Fig. 1), at least one user terminal UT (5, Fig. 1), and a constellation of satellites (4, Fig. 1). The method includes the steps of, for a site to be protected, for example, from UT transmissions, specifying an exclusion or inclusion zone having a confidence limit (CL) associated therewith; and selectively providing service to a UT depending on a determined location of the UT relative to the exclusion or inclusion zone

and on an estimated error (E) of the determined UT location. The exclusion or inclusion zone is specified to be at least one of a polygon that defines an area, a volume, or a surface. The location of the UT can be determined by the UT by its own internal calculations, or by using an external source such as GPS, and transmitted to the GW, or the location of the UT can be determined by the UT in cooperation with the GW, or the location of the UT is determined by the GW. The UT is granted service or denied service if the value of E is less than CL, and the GW may set the value of CL to be less than a possible minimum value of E for excluding all UTs from operating within the exclusion zone, or it may set the value of CL to be greater than a possible maximum value of E for enabling all UTs to operate within the exclusion zone. Overlapping exclusion zones may be specified, each having a different value of CL, and exclusion zones may be shared by two or more GWs. Boundaries of the exclusion zone can be fixed and static, or they may be dynamic and capable of movement, with variability being a function of, for example, time, or a location of the UT or the GW, or a location of the site to be protected. The exclusion zone may be temporary and established and removed as a function of time, and the values of at least one of CL and E may vary as a function of time. At least one of the location or shape of the exclusion or inclusion zone may vary as a function of a location of the UT, or as a function of a location of the GW. The exclusion or inclusion zone may be combinations of Confidence Polygons, Confidence Volumes or Confidence Surfaces. The value of E may be a function of the accuracy of the UT local oscillator, and information that specifies the accuracy of the UT local oscillator can be stored or determined by the UT and sent to the GW, and/or stored in the GW, and/or stored in a home GW of the UT, and transferred from the home GW to a serving GW when the UT is roaming. In addition the value of E for the user terminal may be supplied over a network from a home (HLR) or other location register.

The operation of this invention can be used as a switch, to cause a certain activity by either the user terminal or the gateway, which is based on the location of the user terminal within a service area.

The subject matter defined in independent claim 1 involved in the appeal can be found in the specification on page 4, second paragraph, for example; and in Figures 1-5 wherein there is shown a method for operating a mobile satellite communication system having at least one gateway (GW) (1, Fig. 1), at least one user terminal (UT) (5, Fig. 1), and a constellation of satellites (4, Fig. 1), wherein, for a site (8, Fig. 1) to be protected from UT transmissions, specifying an exclusion zone having a confidence limit (CL) associated

therewith and selectively providing service to a UT depending on a determined location (12, Fig. 1) of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1, 7, 19-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al. in further view of US Patent No. 6,718,169 issued to Martti et al.

2. Claims 2-6 and 8-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al. in view of US Patent No. 6,718,169 issued to Martti et al. and further in view of US Patent Number 6352,222 issued to Maeda et al.

3. Claims 13-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al., US Patent No. 6,718,169 issued to Martti et al., US Patent Number 6352,222 issued to Maeda et al. and further in view of US Patent Number 6,166,687 issued to Ishikawa et al.

ARGUMENT

1. Rejection of Claims 1, 7, 19-25 under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al. and US Patent No. 6,718,169 issued to Martti et al.

The Examiner's position is that "Steer teaches a method for operating a mobile communication system having at least one gateway (MSC), at least one user terminal (UT) and a group of base stations comprising steps of providing a group of base stations and allowing access to the said group of base stations by specifying an exclusion zone and selectively providing service to the UT depending on a determined location of the UT relative to the exclusion zone (Column 3 lines 48-60)." The Examiner admitted that "Steer fails to specifically teach the use of a constellation of satellites which provides mobile communication services to a UT." The Examiner cited Helm et al. as teaching "the use of a constellation of satellites which provides mobile communication services to a UT." The Examiner concluded that "it would have been obvious to one of ordinary skill in the art to combine the teaching of Steer with the teaching of Helm et al. of the use of a constellation of

satellites which provides mobile communication services to a UT to provide mobile communications in area where terrestrial based cellular systems do not provide coverage."

Applicants respectfully submit that Steer discloses "A problem with mobile radio systems is the potentially harmful interference they may cause to other electronic equipment. Such interference can be dangerous and even life-threatening in hospitals and aircraft. The present invention provides a method to protect against improper operation of mobile radios, e.g. cellular phones, by making use of a 'location technique' and knowledge of the mobile's location to determine if the mobile is inside a protected region and thus needs to constrain its operation. Two modes of operation are possible: one utilising a location technique that is part of the mobile radio system, and the second utilising a location service that is independent of the mobile radio system (such as the satellite "based GPS system). The present invention includes control of operation, such as no audible ringing, or outgoing calls only, as well as possible control of transmitter power to protect against interference. This allows for the safe operation of mobile radios in regions where interference could cause serious problems and also provides a method for maintaining social etiquette. Protected region boundaries and conditions of restricted operation are broadcast by base stations on the broadcast control channels. If the location of a mobile is determined to be within a protected region defined by the broadcast message, its operation is limited to the conditions specified."

Applicants respectfully submit that at col. 3, lines 48-60 of Steer there is taught "(d) The mobile radio makes use of a suitable 'location finding' technique to determine its location. (e) The mobile radio compares its measured location to the protected region boundaries to determine whether or not it is inside a protected region and thus, needs to constrain its operation. (f) If the mobile radio is within a protected region, it constrains its operation according to the conditions broadcast for that protected region (e.g. low power operation or no audible ringing). (g) If the mobile radio is not within a protected region, then it operates in the normal (unconstrained) manner."

At col. 3, lines 19-24 of Steer, Applicants respectfully submit there is taught that it is impossible to prevent people from operating mobile radio equipment in sensitive areas so that the invention provides an arrangement whereby they can be operated safely in these areas. However, at col. 3, lines 13 et seq it is clearly indicated that Steer is directed to safety issues, wherein it is stated "This is, perhaps, not quite as life threatening as previous examples, but nonetheless is a serious public nuisance."

Thus, Applicants respectfully submit that Steer is primarily concerned with safety and protection from danger in connection with the operation of cellular phones, especially as recited at col. 1, lines 20 et seq wherein it is stated "There are two places where this problem is particularly dangerous, and perhaps life-threatening. These are in hospitals and in aircraft." Further, as previously recited at col. 3, the recitation again sustains this position by stating that "Many restaurants and concert halls prohibit carrying mobile phones to avoid annoyance to patrons and that this is perhaps not quite as life-threatening as previous examples but nonetheless is a serious public nuisance."

Therefore, it is respectfully submitted that Steer is specifically directed to safety issues, excluding land-based cellular mobile phones, whereas Applicants' invention is directed to a mobile satellite communication system allowing access to the system by specifying exclusion zones as set out in claim 1. Also, Steer does not teach, suggest or imply a gateway and a user terminal as set out in claim 1 nor, as the Examiner admits, discloses the use of a constellation of satellites, a confidence limit (CL), and the estimated error (E) as required by claim 1.

As was mentioned above, the Examiner stated with regard to Claim 1 that "Steer teaches a method for operating a mobile communication system having at least one gateway (MSC), ..." It is not understood what (i.e., gateway (MSC)) that the Examiner is referring to. The terms "gateway" and "MSC" are not used in the Steer patent. Contrary to the Examiner's argument, it is respectfully submitted that the Steer patent does not disclose or suggest that the system includes a gateway as that term is known in the satellite communications art. The term "gateway" is generally understood to be a computer or a network that allows or controls access to another computer or network. It is respectfully submitted that the drawing figures of the Steer patent also do not show that there is a gateway present in the system.

The Examiner argued that "Helm et al. teaches the use of a constellation of satellites which provides mobile communication services to a UT (Figure 1). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teaching of Steer with the teaching of Helm et al. of the use of a constellation of satellites which provides mobile communication services to a UT to provide mobile communications in area where terrestrial based cellular systems do not provide coverage."

It is respectfully submitted that the Examiner's rationale is clearly in direct contradiction to what is disclosed in Steer. As was stated above, Steer teaches that "The present invention includes control of operation, such as no audible ringing, or outgoing calls

only, as well as possible control of transmitter power to protect against interference. This allows for the safe operation of mobile radios in regions where interference could cause serious problems and also provides a method for maintaining social etiquette." Thus, the clear intent of the Steer invention is to limit use of cellular phones at locations where they would possibly interfere with operations at the locations, or to maintain social etiquette, for example.

Therefore, it would be contrary to the express teachings of Steer to modify the Steer system to provide additional coverage that would cause interference in areas that would not normally cause interference. In other words, by adding additional coverage areas using the teachings of Helm et al., Steer would be causing the problem that he intends to avoid. If there is no cell phone coverage in an area, then any cell phones in the area would not operate and would therefore not interfere with operations at in that vicinity, or cause inappropriate social etiquette.

By way of example, if a hospital were outside of a cell phone service area, then a cell phone using that carrier would not function, and therefore would not cause interference. Enlarging the cell phone service area in accordance with Helm et al. only serves to cause the problem that Steer is attempting to eliminate.

Therefore, it is respectfully submitted that one skilled in the art would not combine the teachings of Steer and Helm et al. for the reasons asserted by the Examiner.

The Examiner admitted that "Steer and Helm et al ... do not teach a confidence limit (CL) and the estimated error (E)." However, the Examiner cited the Martti et al. patent as disclosing "the use of (b) a confidence limit and estimated error (which reads on column 1 lines 60-67 and column 2 lines 1-45)." The Examiner concluded that it would have been obvious to improve Steer by modifying the position location system with a confidence limit and estimated error as taught by Martti et at. for the purpose of setting the target value.

It is respectfully submitted that the Examiner's rejection is based upon piecemeal reconstruction of the present invention and improper hindsight reconstruction, using the teachings of the cited references in light of Applicants' own teachings. It is respectfully submitted that there is no teaching contained in the cited references that would suggest their combination. It is respectfully submitted that the reasons argued by the Examiner for combining the references are not mentioned in the cited references and are based upon conjecture and hindsight, and with regard to combining Steer and Helm et al., are in error.

Claim 1 calls for

A method for operating a mobile satellite communication system having at least one gateway (GW), at least one user terminal (UT), and a constellation of satellites, comprising steps of:

allowing access to said constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith; and

selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location.

It is respectfully submitted that the Steer patent has nothing to do with a mobile satellite communication system, it only relates to communication between base stations and mobile radio units. It is respectfully submitted that the Examiner's argument that it would be obvious to combine the teachings of Steer and Helm et al. is not based upon the express teachings of Steer.

It is respectfully submitted that Steer does not envision the use of its technique with a mobile satellite communication system. In the Steer system, the base station is located within or near a protected zone and transmits information specifying the geographic location of the boundaries of the protected zone. This is not the case with the present invention. In the present invention, the user terminal is located at a remote location relative to the gateway. Furthermore, the gateway is typically not located in the exclusion zone.

Furthermore, there is no disclosure or suggestion in Steer that addresses access control to the mobile radio network. It is clear from reading Steer that the mobile radio always has access to and communicates with the base station. Otherwise, it would not be able to receive information over the broadcast control channels of the network. As was stated previously, Steer states that "(f) If the mobile radio is within a protected region, it constrains its operation according to the conditions broadcast for that protected region (e.g. low power operation or no audible ringing). (g) If the mobile radio is not within a protected region, then it operates in the normal (unconstrained) manner." This clearly indicates that a radio has access to the network or base station. The purpose of Steer is not to control access, it is to broadcast information regarding protected region boundaries and conditions of restricted operation so as to control the operating conditions of the radio. As was stated above, Steer does not selectively provide service to the mobile radio based upon its location. Steer constrains operation of the mobile radio according to the conditions broadcast for that protected region. This is not what is recited in claim 1.

Claim 1 allows the user terminal (UT) to access to the network (constellation of communication satellites) based upon the exclusion zone having and confidence limit (CL), and provides service to the user terminal (UT) depending on the determined location of the UT relative to the exclusion zone and on the estimated error (E) of the determined UT location. Steer does not address access control to the network based upon exclusion zone and a confidence limit, and does not selectively provide service to a radio depending on the determined location of the radio relative to the exclusion zone and on an estimated error (E) of the determined radio location.

There is no confidence limit disclosed in Steer that is related to the information specifying the geographic location of the boundaries of the protected zone that is transmitted by the base station. Furthermore, there is no need for such a confidence limit, because the base station is located within or near a protected zone, and therefore there is basically absolute confidence that the mobile unit is within the protected zone.

Also, there is no estimated error (E) determined for the location of the mobile unit in the Steer system. Furthermore, no is required for operation of the Steer system. There is no confidence limit required to determine if the mobile radio is inside the protected region. The fact that the Examiner contends that the Martti et al. patent discloses the use of a confidence limit and estimated error is irrelevant to the fact that no such parameters are required or desired for operation of the Steer system. Furthermore, the use of a confidence limit and estimated error is not required or desired for operation of the Helm et al. system.

In addition, Applicants respectfully contend that Martti et al. discloses a confidence limit for a telecommunication network element that is completely non-analogous to the system of the instant invention and neither suggests, teaches or implies its use in connection with a communication satellite system comprising a user terminal and gateway of the instant invention associated with providing access to same, and employing an exclusion zone on an estimated error (E) of the determined user terminal location as required in claim 1.

It is respectfully submitted that there is no disclosure or suggestion contained in Steer or Helm et al. regarding selectively providing service to a mobile unit depending on the determined location of the mobile unit relative to the exclusion zone and on the estimated error (E) of the determined location of the mobile unit.

It is respectfully submitted that there must be some teaching contained in the cited references that would suggest combining their teachings. This is clearly not the case with regard to the references cited by the Examiner. Neither the Steer system nor the Helm et al.

system requires determination of an estimated error for the location of a mobile unit in order for the systems to operate properly.

It is respectfully submitted that the Examiner's justification for combining the teachings of Steer and Helm et al. that "the use of a constellation of satellites which provides mobile communication services to a UT to provide mobile communications in area where terrestrial based cellular systems do not provide coverage" is not based upon the teachings of the Steer patent. The Steer patent teaches that the base station is within or near the protected area in which the mobile phone may operate. Thus, the base station is in relatively close proximity to the mobile phone, and Steer did not specifically envision the use of the system with a satellite based communication system. Furthermore, satellite based communication system were in operation at the time that Steer developed the system, so if the teaching were intended for use on a satellite based communication system it could have certainly been discussed, along with the use of a satellite based communication system to extend the range of the disclosed mobile communication system.

It is respectfully submitted that the Examiner's justification for combining the teachings of Steer, Helm et al. and Martti et al. that "modifying the a position location system with a confidence limit and estimated error as taught by Martti et at. for the purpose of setting the target value" is irrelevant to the teachings of either Steer or Helm et al., and is not required for proper operation of either system. Furthermore, it is not understood what "target value" means with regard to the teachings of Steer or Helm et al. The term "target value" is not used in either Steer or Helm et al.

In the Advisory Action dated August 10, 2007, the Examiner stated that "In response to applicants argument that Steer is not used in a satellite communication system, but rather is used in a terrestrial communication system, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim."

Applicants respectfully submit that what is disclosed or suggested by Steer is not what is recited in claim 1. In view of the above arguments, Steer does not disclose or suggest a system that provides access control to a network based upon exclusion zone and a confidence limit. To the contrary, the mobile radios taught by Steer have access to the network. Otherwise, they could not receive information over the broadcast control channels. Furthermore, Steer does not disclose or suggest selectively providing service to a radio

depending on the determined location of the radio relative to the exclusion zone and on an estimated error (E) of the determined radio location. To the contrary, Steer constrains operation of the mobile radio according to the conditions broadcast for that protected region.

In the Advisory Action dated August 10, 2007, the Examiner stated that "In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin, 443* F.2d 1392, 170 USPQ 209 (CCPA 1971)."

However, notwithstanding this general statement, it is respectfully submitted that there must be some disclosure or teaching contained in the cited references that would address allowing access to a network (constellation of communication satellites) by specifying an exclusion zone having a confidence limit and selectively providing service to a radio (user terminal) depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location. It is clear that the cited references contain no such teaching regarding access control and providing service to a user, or else some discussion regarding this would be present in the cited references. Specifically, such a teaching or suggestion cannot be found in any of the cited references. As was stated above, the Steer radios always have access to the network, and operation of the mobile radio is constrained according to the conditions broadcast for that protected region.

It is clear the Examiner has distorted the express teachings of the cited references in order to assert that it does what is recited in claim 1. It is therefore respectfully submitted that the Examiner has used improper hindsight reconstruction to reject the present invention, using the teachings of the cited references in light of Applicant's own teachings. The only teaching relating to access control and providing service to a user is found in the present application.

Therefore, it is respectfully submitted that Steer and Helm et al., even if they could be combined without using improper hindsight reconstruction, do not disclose or suggest a method for operating a mobile satellite communication system comprising "allowing access to said constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith" and "selectively providing service to a UT

depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location." Furthermore, Martti et al. does not provide any teaching or suggestion that would provide for such access control and service control.

Therefore, it is respectfully submitted that claim 1 is not disclosed or suggested by the teachings of Steer, Helm et al. and Martti et al., taken singly or together, and certainly not without using improper hindsight reconstruction. Accordingly, reversal of the Examiner's rejection of claim 1 are respectfully requested.

Claims 7 and 19-25 are considered allowable over the teachings of Steer, Helm et al. and Martti et al., taken singly or together, at least based upon their dependence from allowable claim 1. Reversal of the Examiner's rejection of claims 7, 19-25 is respectfully requested.

2. Rejection under 35 U.S.C. 103(a) of Claims 2-6 and 8-12 under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al., US Patent No. 6,718,169 issued to Martti et al. and US Patent Number 6352,222 issued to Maeda et al.

The Examiner's position regarding claims 2, 6, 8 and 9 is that "Steer discloses everything claimed as applied above (see claim 1) however, Steer fails to specifically discloses the use of the exclusion zone comprises at least one of a polygon that defines an area, a volume, or a surface."

The Examiner stated that "In the same field of endeavor, Maeda et at. discloses a satellite, satellite control method and satellite communication system. In addition Maeda et al. discloses the use of a exclusion zone comprises at least one of a polygon that defines an area, a volume, or a surface (which reads on this as to form such a polygon that includes all the service areas, as disclosed in column 10 lines 37-39)."

The Examiner concluded that "Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve the Steer, Helm et at. and Maeda et al combination by modifying the position location system with the exclusion zone comprises at least one of a polygon that defines an area, a volume or a surface as taught by Maeda et at. for the purpose of setting the initial value for the orbital inclination angle."

It is respectfully submitted that the Examiner's rejection is based upon piecemeal hindsight reconstruction of the present invention, using the teachings of the cited references

in light of Applicants' own teachings. The Examiner has cited four references that purportedly show isolated aspects of the present invention. However, it is respectfully submitted that there must be some teaching contained in the cited references that would suggest combining their teachings. This is clearly not the case with regard to the references cited by the Examiner. There is absolutely no teaching contained in the cited references that would suggest their combination. This is only found in the present application. The "step-wise" finding of individual recited elements recited in the pending claims in a succession of generally unrelated references amounts to hindsight reconstruction on the part of the Examiner.

It is respectfully submitted that the arguments made above with regard to claim 1 support the allowability of claims 2-6 and 8-12. For the reasons argued above, none of the cited references, taken singly or together, provide for a method that controls access to a constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith and selectively provides service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location." Furthermore, Martti et al. does not provide any teaching or suggestion that would provide for such access control and service control.

In addition, it is respectfully submitted that Maeda et al. is not relevant to the mobile satellite communication system of the present invention, nor does it speak to accessing a satellite system by specifying exclusion zones, nor does it teach, suggest or imply selectively providing service to a user terminal depending on a determined location of the user terminal relative to the exclusion zone and on an estimated error (E) of the determined user terminal location.

Also, it is respectfully submitted that Maeda et al. does nothing more than define service areas and speak to four locations over Japan where service areas are not included in a quadrangle having those locations at its corners, additional locations with their own latitude, longitude and elevation are defined so as to form "such a polygon that includes all the service areas. This polygon can be formed by plural adjoining triangles."

More particularly, Applicants respectfully contend that Maeda et al is directed to "In order to establish the communication lines among the movable bodies and/or fixed stations and to configure communication system with a small number of satellites, present method has the steps of determining six orbit-related parameters by using a input conditions

including a geographical condition of the service area, a desired service time and the tolerance of an ascending vertical angle within which the satellite can be viewed from the service area, and establishing the satellite communication with one or more satellites, an individual satellite being arranged on the orbits selected and combined among plural elliptical orbits corresponding to the determined six orbit-related parameters on which the satellites stay for a sufficiently long time that they may come successfully into sight in the zenith direction."

Applicants respectfully submit that Maeda et al. at col. 10, lines 37-39 teaches that "additional locations may be defined so as to form such a polygon that includes all the service areas. "This polygon can be formed by plural adjoining triangles."

Applicants respectfully submit that Maeda et al. is directed to an artificial satellite traveling along an elliptical orbit. The elliptical orbit is defined by six orbit-related parameters obtained with input conditions including the geographical conditions of the service area to be covered by the artificial satellite. The tolerance of the ascending vertical angle within which the artificial satellite can be viewed from the service area and the reference time defining the orbit elements. Maeda et al. are not seen to be concerned with the mobile satellite communication system of the instant invention, nor does it speak to accessing said satellite system by specifying exclusion zones, nor does it teach, suggest or imply selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location.

As previously stated, Applicants respectfully contend that Maeda et al. does nothing more than define service areas and speak to four locations over Japan where service areas are not included in a quadrangle having those locations at its corners, additional locations with their own latitude, longitude and elevation are defined so as to form "such a polygon that includes all the service areas. This polygon can be formed by plural adjoining triangles."

Applicants respectfully submit that this teaching may not be properly combined with the teachings of Steer, which are directed to a land-based cellular telephone system, nor cure the deficiencies of Steer, relating to exclusion zones comprising at least one polygon that defines an area, a volume or surface as in claim 2; a polygon that defines an area, a volume or a surface and further considers at least one of RF obstructions and terrain features as in claim 6; an exclusion zone specified to comprise a polygon defined by connected points on the surface of the earth as in claim 8; and, finally, an exclusion zone specified to comprise a

volume defined by connected points on the surface of the earth and at least one point located above the surface of the earth as in claim 9.

Therefore, Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Steer by modifying the position location system with the exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume or a surface as taught by Maeda et al. for the purpose of setting the initial value for the orbital inclination angle.

In view of the above, it is respectfully submitted that claims 2, 6, 8 and 9 are not disclosed or suggested by the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, and certainly not without using improper hindsight reconstruction. Accordingly, reversal of the Examiner's rejection of claims 2, 6, 8 and 9 are respectfully requested.

The Examiner states regarding claims 3-5, that "Steer discloses everything claimed as applied above (see claim 1), in addition Steer discloses a location of the UT (10) is determined by the UT (10), and transmitted to the GW (7) as disclosed in col. 4, lines 45-67."

Applicants respectfully submit that at col. 4, lines 45-67 of Steer there is a description of the preferred embodiment, "Referring to Fig. 1, a portion of a radio communications system is shown comprising a plurality of base stations and mobile radios ... A mobile radio 10 is shown located within a protected (controlled) region 12 and another mobile radio 11 is shown outside the protected region 12."

Applicants respectfully submit that claims 3-5 are patentable over Steer for the reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference. Furthermore, Applicants respectfully submit that Steer no where at the recited passages relied upon by the Examiner discloses a method as in claim 1 wherein location of the UT is determined by the UT and transmitted to the GW. Applicants respectfully submit that Steer is devoid of any teaching, suggestion or implication of a GW as employed in the instant claims. Likewise, Applicants respectfully submit that Steer is deficient in teaching the method as set out in claim 1 wherein the location of the UT is determined by the UT in cooperation with the GW; and the method of claim 1 wherein the location of the UT is determined by the GW for the reasons recited above with respect to claims 1 and 3.

Therefore, it is respectfully submitted that claims 3-5 are not disclosed or suggested by the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together,

and certainly not without using improper hindsight reconstruction. Accordingly, reversal of the Examiner's rejection of claims 2, 6, 8 and 9are respectfully requested.

The Examiner states regarding claim 10, that "Steer discloses everything claimed as applied above (see claim 1), in addition Steer discloses the exclusion zone is specified to comprise a surface defined by at least two connected points on the surface of the earth and at least point located above the surface of the earth as disclosed in col. 5, lines 4-15."

Applicants respectfully submit that at col. 5, lines 4-15 of Steer there is merely indicated that "Although only one protected region 12 is shown, it should be obvious that in any mobile communications network, there may be more than one such protected region. The boundaries may be described by means of the standard latitude and longitude measures of the boundaries of the region inside which mobile radio operations are to be restricted..." Applicants respectfully contend that this recitation as relied upon by the Examiner does not teach, suggest or imply that the exclusion zone is specified to comprise a surface defined by at least two connected points on the surface of the earth and at least one point located above the surface of the earth as required by claim 10. Furthermore, claim 10 has been seen to be patentably distinguishable over Steer for reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference.

Therefore, it is respectfully submitted that claim 10 is not disclosed or suggested by the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, and certainly not without using improper hindsight reconstruction. Accordingly, reversal of the Examiner's rejection of claim 10 is respectfully requested.

The Examiner states regarding claims 11 and 12, that "Steer discloses everything claimed as applied above (see claim 1), in addition Steer discloses boundaries of the exclusion zone are static as disclosed in col. 5, lines 4-15."

Applicants respectfully submit that at col. 5, lines 4-15 of Steer there is disclosed "it should be obvious that in any mobile communications network, there may be more than one such protected region. The boundaries may be described by means of the standard latitude and longitude measures of the boundaries of the region inside which mobile radio operations are to be restricted." Applicants respectfully submit that although they do not necessarily agree that the recited passages in col. 5 of Steer, relied upon by the Examiner, teach static boundaries, nevertheless, claim 11 has been seen to be patentably distinguishable over Steer for reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference.

Applicants further respectfully contend that with regard to claim 12, the mere teaching in the recited reference relied upon by the Examiner that there may be more than one protected area does not teach an exclusion zone having dynamic exclusion areas and capable of at least one movement or change in shape as required by claim 12. Furthermore, claim 12 has been seen to be patentably distinguishable over Steer for reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference.

Therefore, it is respectfully submitted that claims 11 and 12 are not disclosed or suggested by the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, and certainly not without using improper hindsight reconstruction. Accordingly, reversal of the Examiner's rejection of claims 11 and 12 are respectfully requested.

In view of the above, it is respectfully submitted that Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, do not disclose or suggest the invention recited in claim 1, and certainly not without the use of improper hindsight reconstruction, for the reasons argued above regarding claim 1. Therefore, Claims 2-6 and 8-12 are allowable over the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, at least based upon their dependence from allowable claim 1. Furthermore, it is respectfully submitted that the Examiner's rejection is based upon piecemeal reconstruction of the present invention, using the teachings of the cited references in light of Applicants' own teachings. Reversal of the Examiner's rejection of Claims 2-6 and 8-12 are respectfully requested.

3. Rejection of Claims 13-18 under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 6,643,517 issued to Steer in view of US Patent No. 6,157,834 issued to Helm et al., US Patent No. 6,718,169 issued to Martti et al., US Patent Number 6352,222 issued to Maeda et al. and US Patent Number 6,166,687 issued to Ishikawa et al.

Regarding claims 13-18, the Examiner stated that "Steer, Helm et al., Martti et al. and Maeda et al. teach the limitations of claims 1-12, but do not teach the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the UT.

The Examiner stated that "In the same field of endeavor, Ishikawa et al. discloses a method for determining position of mobile earth station in satellite communication system. In addition Ishikawa et at. discloses the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the GW (which reads on it is possible to perform high accuracy position

determination by estimating and Compensating for the timing error arising from instability in the accuracy of the clock of the mobile earth station and the frequency error resulting from instability of the frequency oscillator of the mobile earth station, as disclosed in column 6 lines 10-20).

The Examiner concluded that "Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve the combination of Steer, Helm et al., Martti et al. and Maeda et al. with Ishikawa et al. wherein the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the UT as taught by Ishikawa et al. for the purpose of determine the estimated position of the mobile earth station relative to its true position.

Again, it is respectfully submitted that the Examiner's rejection is based upon piecemeal hindsight reconstruction of the present invention, using the teachings of the cited references in light of Applicants' own teachings. The Examiner has cited five references that purportedly show isolated aspects of the present invention. However, it is respectfully submitted that there must be some teaching contained in the cited references that would suggest combining their teachings. This is clearly not the case with regard to the references cited by the Examiner. There is absolutely no teaching contained in the cited references that would suggest their combination. This is only found in the present application.

One skilled in the art would not be led to utilize the teachings disclosed by the Helm et al., Martti et al., Maeda et al. or Ishikawa et al. references in the Steer system based upon a reading the Steer patent, or the specific teachings of any of the cited references. This "step-wise" finding of individual recited elements recited in the pending claims in a succession of generally unrelated references amounts to hindsight reconstruction on the part of the Examiner.

Applicants respectfully submit that at col. 6, lines 10-20 in Ishikawa et al there is disclosed "According to another aspect of the present invention, by using the information about measured distances and Doppler shift amounts between the mobile earth station and the non-geostationary satellite, which are measured at different local times, errors in time which are attributable to instability in the position of the mobile earth station and in the accuracy of the clock mounted in the mobile earth station and errors in frequency which result from instability of the frequency oscillator mounted in each mobile earth station can be

estimated at the same time. By removing the factors responsible for these errors, it is possible to achieve high accuracy position determination of the mobile earth station."

Applicants respectfully contend that no where in the recited passage at col. 6 of Ishikawa et al is there taught, suggested or implied employing the method of claim 1 wherein the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the UT as in claim 13; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the GW as in claim 14; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in a home GW of the UT and is transferred from the home GW to a serving GW when the UT is roaming as in claim 15; the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in or is determined by the UT and is transferred to the GW as in claim 16; the value of E is less than CL and where the GW sets the value of CL to be less than a possible minimum value of E for excluding all UTs from operating within the exclusion zone as in claim 17; and, finally, where the value of E is less than CL and where the GW sets the value of CL to be greater than a possible maximum value of E for enabling all UTs to operate within the exclusion zone as in claim 18.

Furthermore, it is respectfully submitted that the passage relied upon by the Examiner is devoid of any evaluation or specification of the value of E as recited in claims 13-18 and merely states "... errors in time which are attributable to instability in the position of the mobile earth station and in the accuracy of the clock mounted in the mobile earth station and errors in frequency which result from instability of the frequency oscillator mounted in each mobile earth station can be estimated at the same time." Applicants are at a loss to discern wherein the recited passage relied upon by the Examiner there is taught, suggested or implied the value of E as set out in claims 13-18.

Applicants therefore respectfully disagree that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Steer in view of Maeda et al with the use of the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the UT as taught by Ishikawa et al for the purpose of determine the estimated position of the mobile earth station relative to its true position as alleged by the Examiner.

Applicants respectfully submit that claims 13-18 are patentable over the references of record, Steer, Maeda et al and Ishikawa et al; Steer directed to a land-based cellular phone system using location information for interference protection regarding safety issues, Maeda et al directed to a satellite control method and satellite communication system, and Ishikawa et al directed to a method for determining position of mobile earth station in satellite communication systems do not compositely teach, suggest or imply the teachings as set out in claims 13-18 or the remaining claims of the application, nor would one of ordinary skill in the art be induced to combine them in the manner suggested by the Examiner, aside from Applicants' own disclosure, there being no motivation to do so.

It is also respectfully submitted that Steer, Helm et al., Martti et al., Maeda et al. and Ishikawa et al., taken singly or together, do not disclose or suggest the invention recited in claim 1 without the use of improper hindsight reconstruction, for the reasons argued above with regard to claim 1. Accordingly, claims 13-18 are considered allowable over the teachings of Steer, Helm et al., Martti et al. and Maeda et al., taken singly or together, at least based upon their dependence from allowable claim 1. Furthermore, it is respectfully submitted that the Examiner's rejection is based upon piecemeal reconstruction of the present invention, using the teachings of the cited references in light of Applicants' own teachings. Reversal of the Examiner's rejection of claims 13-18 is respectfully requested.

Claim 26 was allowed by the Examiner.

In conclusion, it is respectfully submitted that the Steer patent, taken singly or in combination with the other cited references, does not disclose or suggest a method for operating a mobile satellite communication system having at least one gateway, at least one user terminal, a constellation of satellites, wherein access is allowed to the constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith, and service is selectively provided to a user terminal depending on a determined location of the user terminal relative to the exclusion zone and on an estimated error (E) of the determined user terminal location. The Steer patent is directed to applying location techniques to protect against the use of land-based cellular phones in prohibited areas wherein operation of same could cause damage such as in hospitals or airplanes. It is respectfully submitted that Applicants claims are completely distinguishable over the teachings of the Steer patent, taken singly or in combination with the other cited references. Therefore, it is respectfully submitted that all pending claims are not obvious in view of the

cited references, taken singly or together, and are thus patentably distinguishable over the prior art cited by the Examiner, alone or in any combination, and are therefore patentable.

Accordingly, Applicants respectfully request that the final rejection of the primary Examiner as to claims 1-25 be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

Claims 1-26 as presented below are currently pending in this application.

1. A method for operating a mobile satellite communication system having at least one gateway (GW), at least one user terminal (UT), and a constellation of satellites, comprising steps of:

allowing access to said constellation of communication satellites by specifying an exclusion zone having a confidence limit (CL) associated therewith; and

selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location.

2. A method as in claim 1, wherein the exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume, or a surface.

3. A method as in claim 1, wherein location of the UT is determined by the UT, and transmitted to the GW.

4. A method as in claim 1, wherein location of the UT is determined by the UT in cooperation with the GW.

5. A method as in claim 1, wherein location of the UT is determined by the GW.

6. A method as in claim 1, wherein the exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume, or a surface, and further considers at least one of RF obstructions and terrain features.

7. A method as in claim 1, wherein the UT is granted service if the value of E is less than CL.

8. A method as in claim 1, wherein the exclusion zone is specified to comprise a polygon defined by connected points on the surface of the earth.

9. A method as in claim 1, wherein the exclusion zone is specified to comprise a volume defined by connected points on the surface of the earth and at least one point located above the surface of the earth.

10. A method as in claim 1, wherein the exclusion zone is specified to comprise a surface defined by at least two connected points on the surface of the earth and at least one point located above the surface of the earth.

11. A method as in claim 1, wherein boundaries of the exclusion zone are static.

12. A method as in claim 1, wherein boundaries of the exclusion zone are dynamic and capable of at least one of movement or change in shape.

13. A method as in claim 1, wherein the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the UT.

14. A method as in claim 1, wherein the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the GW.

15. A method as in claim 1, wherein the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in a home GW of the UT, and is transferred from the home GW to a serving GW when the UT is roaming.

16. A method as in claim 1, wherein the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in or is determined by the UT and is transferred to the GW.

17. A method as in claim 1, wherein the UT is granted service if the value of E is less than CL, and where the GW sets the value of CL to be less than a possible minimum value of E for excluding all UTs from operating within the exclusion zone.

18. A method as in claim 1, wherein the UT is granted service if the value of E is less than CL, and where the GW sets the value of CL to be greater than a possible maximum value of E for enabling all UTs to operate within the exclusion zone.

19. A method as in claim 1, wherein there are overlapping exclusion zones specified, each having a different value of CL.

20. A method as in claim 1, wherein the exclusion zone is temporary and is established and removed as a function of time.

21. A method as in claim 1, wherein the values of at least one of CL and E vary as a function of time.

22. A method as in claim 1, wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the UT.

23. A method as in claim 1, wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the GW.

24. A method as in claim 1, wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the protected site.

25. A method as in claim 1, wherein the exclusion zone is shared between at least two gateways.

26. A mobile satellite communication system comprising at least one gateway (GW), at least one user terminal (UT), and a constellation of satellites, said GW comprising a controller for controlling operations of said UT and further comprising an interface to at least one of the Public Switched Telephone Network (PSTN) or to the Internet, said GW storing a database containing at least one of a Confidence Polygon, a Confidence Volume, or a Confidence Surface to establish a geometric shape located on the earth, above the earth or in space, or combinations thereof, said GW further storing a static or a variable Confidence

Limit (CL) value that is compared to a value of an error (E) in a position location of the UT, said controller acting upon the database and assigned or derived values of CL and E, to determine if a comparison of CL and E, combined with a current position of the UT, yields a certain result according to the operational mode of the GW controller, wherein depending on the operational mode of the GW the result of the comparison affects control of the UT or an external device attached to the UT, whereby the UT is forbidden or allowed to access the mobile satellite system or to make or receive a call, or depending on the operational mode of the GW the result of the comparison affects some operational characteristic of the UT to provide an ability to protect a site from UT emissions.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.